CHAPTER-X

SUMMARY, CONCLUSIONS AND SUGGESTIONS

10.1 Introduction:

Lac culture is an economically important vocation practised by many farmers particularly economically weak sections of people. Lac culture, being a labour oriented activity, provides ample opportunity for employment. Employment is generated in three stages: a) cultivation of lac; b) processing of lac; and c) trading of lac (both internal and external trade).

Most of the processing units are located in the following states: West Bengal, Jharkhand, Chhattisgarh, Maharashtra. Processing industry in Purulia district, in the state of West Bengal is notable among them both in terms of production of lac goods and provision of livelihood throughout the year.

The district of Purulia possesses a huge untapped potentiality for lac production and it is possible to achieve a multifold increase in lac production by employing unutilized human resources. Moreover the climatic and topographical condition in this district is not favourable for cultivation of traditional cereals instead, the cultivation of lac is easy with least input and labours resulting in four crops in a year.

A definite external demand already exists for lac derived materials. Recently there are indications of good growth of domestic demand for lac. Given huge prospects of lac-industry in Purulia this study has been undertaken to identify the nature of the problems faced by this industry, and also to suggest remedial measures for the revival of it.

The main purpose of this study is to identify & analyse the problems and prospects of lac industry in the district of Purulia. The present study is based on data collected from primary as well as secondary sources. For the collection of primary data surveys have been conducted in the lac growing areas of the district of Purulia and in a few lac processing units- in Balarampur, Jhalda and Tulin. The secondary sources are-Annual Report of Shellac Export Promotion Council, Kolkata; Annual report of the Institute of Forest Productivity,
Annual reports of Indian Lac Research Institute. The collected data have been analysed by using appropriate statistical tools.

10.2 A Profile of Purulia District

Purulia district is surrounded in three sides by three districts of Bihar and Jharkhand state. To the north and north west there are Dhanbad and Hazaribag districts to the west Ranchi district, Burdwan district of West Bengal is to the north east whereas Bankura to the east and Midnapore to the south east.

It was previously called as Manbhum district under Chhotonagpur Division of Bihar from which 2407 square miles were included in West Bengal in the name of Purulia district on 1st November 1956.

Average monthly rainfall during last 50 years is 1357 mm. The relative humidity is high in monsoon season, being 75% to 85%. But in summer it comes down to 25% to 35%. It has been observed that medium type of drought occurs once in every 3 years and severe type of drought occurs once in every 10 years in the District. Temperature varies in wide range from 7º Celsius in winter to 46.5º Celsius in summer.

The district has a total population of 2927965 (as per 2011 census) of which 2554584 (87.24%) are residing in rural areas and 373381 (12.76%) persons in urban areas. About 51.15% are males and the rest are females.

The economy of the Purulia district mostly depends on agricultural sector instead of industrial sectors. Purulia is mainly an agricultural district. As the statistics say, only 14% of the district’s income comes from the industrial sector. Coal mining constitutes the major large-scale industrial pursuit with its quarries and one coal washery, while the main industrial activities in the small-scale sector centre on lac, tassar, brass, bell metal and cutlery. The most important industry in the district after coal is lac.

Lac cultivation was once the main economic activity of the district and it was the main source of income for villagers because the land and its texture and climate were not congenial for traditional cultivation of paddy etc. Now a days due to advent of developed technology and its application in the agricultural and irrigation arena more and more land is being cultivated with paddy and other traditional crops. As a result, the prominence of lac
cultivation has lost its position as main economic activity. Now it plays the role of supporting economic activity. Though supporting, still it remains as an important economic activity. Thousands of villagers undertake lac cultivation throughout the year and earn sizeable income to support their families.

The fact suggests that the district still now seems to be an underdeveloped district. From the point of view of agriculture, industry and infrastructural facilities, density of population per sq. Km. and literacy percentage of total population of Purulia are also low compared to that of West Bengal. However, there is a huge scope of improvement in the industrial sector, if the district explores the facilities, which are located in commercially advantageous positions, well connected with major cities, adequate mineral deposits, cheap land and surplus labour force. Lac is a blessing of the nature. We should make good use of it. Efforts are there. There should be more.

### 10.3 Lac In India

By the beginning of 20th century, Mirzapur people came to Purulia gradually to establish the lac manufacturing factory for processing of local raw material at lower overhead cost. Within the decade 55 numbers of factories were established at Balarampur and Jhalda. On progress of time the manufacturer choose different lac growing regions for setting up their factory over different parts of India i.e. Maharashtra, Madhya Pradesh (Chhattisgarh), Bihar (Jharkhand), Orissa etc. Different professional classes are formed according their type of relation with the lac industry.

The main characteristic of the lac industry is that it is subject to wide fluctuation of production, price and exports. Lindsay and Harlow Committee (1921) was constituted in order to find out the measures for stabilizing the market. In the decade of sixties Government came into action by launching Buffer Stock Scheme in order to facilitate the growers who constantly received unremunerative price. Second time Buffer Stock Operation of Seedlac was introduced in the year at 1976-77 for the same reason. In both the schemes the intermediaries were the ultimate gainers and made the schemes fruitless.

One account says there were 150 lac factories in the decade (1921-30), which engaged an average of 5,000 labourers. Exports of India also increased intensively,
averaging 31,413 M.T. per year during this period. Actually India held monopoly position in exporting all forms of lac upto 1939. With the outbreak of World War (II) the shellac factory has been set up in Thailand and India’s monopoly in the lac trade was being hampered. Ultimately in the decade of Seventies India faced stiff competition from Thailac as well as Synthetic resin. Subsequently quantity of export decreased but with the advent of rise of price of lac India’s export earning reached its maximum amount in the year amounting Rs. 227.19 crore.

The production of Baisakhi crop has been traditionally predominant since the beginning of 20th century. The production of Katki crop is next in importance. A little contribution came from Kusumi strain (Jethwi & Aghani). Eventually in the decade (1941-50) Baisakhi and Katki contributed 60 percent and 22 percent of the total production respectively whereas Kusumi strain account for only 18 percent of the total.

Recent production pattern suggests that top five lac producing states are Chhattisgarh, Jharkhand, Madhya Pradesh, West Bengal and Maharashtra. Regarding share of different crops as usual Baisakhi occupied 1st position followed by Katki, Aghani and Jethwi. Chhattisgarh and Jharkhand hold dominating position in producing both the crops of Kusumi strain i.e. Jethwi and Aghani. Unfortunately in spite of our having large forest area in our country still the production has been declining for the last several years. Apart from the adverse impact of imports of sticklac and seedlac on the production of sticklac, the other factors contributing to the fluctuation and the decline in production have been the recurrence of adverse climatic conditions, continuance of traditional methods of cultivation, shortage of quality of broodlac and restricted availability of credit from the banking sector.

On the basis of surveys conducted at different lac processing centers in the country, tons which also included the imported lac in India, 28 lac processing units in Chhattisgarh, 15 units in Jharkhand, 6 units in Maharashtra, 2 units in Madhya Pradesh and 142 units in West Bengal were in running condition during the year 2010-11. In processing of lac, West Bengal ranked 1st (42.3 per cent) followed by Chhattisgarh (26.3 per cent), Jharkhand (25.5 per cent), Maharashtra (5.1 per cent) and Madhya Pradesh (0.7 per cent).

The World War-II influenced greatly the trend of India’s production. For example West Bengal’s production declined by four times. In those days undivided Bihar was the largest producer of sticklac. The other important states in this concern were Madhya Pradesh
and West Bengal etc. However India’s production failed to come out from declining trend to gain its past glory. Not only that during last five decades a notable fluctuation in both production and export have been seen instead of desired steady production.

10.4 Lac in West Bengal

Lac culture is generally located in elevated terrains ranging between 300 to 900 meters above sea level having rainfall of about 100-150 millimeters and temperature ranging between 20-30 °C. The districts falling in this category are: Purulia, Birbhum, Bankura and Midnapore. From the ancient age large numbers of families were employed in this trade. The manufacture of seedlac is an old-time industry of these districts which was carried on extensively during the second half of the 19th century. We find it from the report on the survey of cottage industries in Bengal. It can be seen that crop under Kusumi strain has no contribution in total production. All production has come from Rangeeni strain. Again the Baisakhi crop of this strain has superiority over the other crop.

Purulia is the main lac producing district in the state. Midnapore and Bankura are next in importance. Small quantities of lac are also produced in Birbhum, Murshidabad and Malda districts. From the production pattern of sticklac in respect of Purulia, West Bengal for last few decades it can be clearly observed that Purulia itself produces almost 90% of total production of West Bengal.

Calcutta is the terminal market for lac. It deals mainly with shellac. In the 1939-45 war many factories are established in this district as a result of huge demand of war time uses of shellac produced goods. The then factories manufactured 33 types of shellacs and two types of shellac wax. Since then Calcutta Shellac Trade Association guides the Calcutta trade through inducing a large measure of cohesion and stability in the Calcutta market.

Employment Potentiality in lac processing has been discussed at length in this chapter. The labourers are engaged in refining of lac in two steps the conversion of sticklac into seedlac (granulated form) and conversion of seedlac into shellac (flake form). The various lac processing units fall into two groups, namely non mechanised units and mechanised units. Few of the mechanised units use solvent extraction process, while others use mechanised heat process. More than 90 percent of processed materials are exported.
Govt. has realized the importance of this industry in providing various forward and backward linkages from grass root growers on the one hand to processors, manufacturers, middle-men and traders, exporters and final consumers on the other. Government has positively intervened towards the problems of the industry- ranging from technical conditions of production, marketing, domestic consumption, fluctuating prices, export and competition from synthetics and diversification. In the 2nd five year plan, attempts were made to revitalize this industry and a scheme has been drawn up by the Directorate of Industries, West Bengal. Government initiated a Buffer Stock and Price Support Scheme (January, 1976) to ensure that the socially backward growers do not suffer due to demand recession. The recent programmes implemented by the State Government under different schemes with a view to increase lac crop production through distribution of brood lac free of cost and organization of scientific demonstration plots with lac host trees of poor lac growers have also been discussed in this chapter.

10.5 Lac Production in Purulia District

Lac production depends on technological factors like quality of broodlac, scientific method of cultivation, nature of host plant etc. It is also greatly influenced by weather conditions like annual rainfall, occurrence of hail, frost etc. It also depends on economic factors like price of the product, marketing and credit facilities, socio-economic profile of the lac growers etc. Over the study period several times natural and economic factors coupled with technological factors have acted either adversely or in favour of lac production and caused fluctuation in production.

In this chapter we have brought different features (Location and Physical Features) of Purulia district which made the district favourable to lac culture. To find the origin of lac culture we have taken help from historical materials written on Purulia district, a brief discussion about background of establishing shellac industry in this district is mentioned in the form of Historical Accounts. The scope for lac cultivation and manufacturing in main region of lac cultivation in Purulia District has been judged with special care. Statistical evidence with comparison of national and state data has been incorporated into this discussion to highlight the significance of the district in lac production.
The crop-wise (four crops- Baisakhi, Jethwi, Katki and Aghani) analysis shows that the major contribution in total production comes from Baisakhi crop (the pre-dominant crop traditionally). The fluctuating and diminishing tendency of Baisakhi crops production caused to change the total production in similar fashion.

10.6 Conditions of Lac Agriculture in Purulia District

The forest and sub-forest dweller of the Purulia district having only limited areas for cultivation, meagre irrigated land and limited scope of irrigation systems mainly depends on rainfed agriculture and forest for their livelihood. But forest of the district is blessed with the plenty of lac host trees such as Kusum, Palas, Ber and Babul. Survey data, in respect of available number of host trees in different blocks in the district have been collected from the respective Block Development Offices. Lac cultivation is simple with no involvement of high technology and very low investment. It is eminently suited to the farmers living in the vicinity of the forests including women as it demands only their part time attention. We found from survey that major lac producing areas in Purulia district are Ayodhya Pahar, Baghmundi, Jhalda-I, Arsha-I, Balrampur, Barabazar, Purulia-I, Manbazar-I & II, Kashipur, Bandwan and Hura. Minor Forest Produces (MFPs) including lac are a more important source of income in those households where land is not a major source of income. In the district its cultivation provides an important additional income next only to the agriculture. Farmers are also dependent on lac cultivation for their livelihood resources and lac is regarded as an important source of cash flow to the marginal, small and large farmers in the district. It has been noticed that there are two purposes behind lac cultivation, firstly, to take it as family occupation and secondly, to take it for commercial purpose. In fact the district produces highest quality of Rangeeni lac, whose trade name is Manbhum Baisakhi.

The present chapter is an endeavour to throw light on different aspects of lac cultivation including its profitability over any other job in farm and non-farm activities available in the lac growing areas. The present chapter is divided into two parts. The first part of the study deals with the lac production pattern, net returns of farm activities, non farm activities and lac activities respectively as well as impact of lac on net farm income and is concerned with the collection of the primary data from the selected farmers for year 2009-
2010. Over the year a comparative analysis of cost, return in lac cultivation with other activities is adopted in the segment.

Part-II deals with the marketing activities of lac production. This part of the study relates to the marketing process of lac production of the concerned farmers selected under study. This part deals with the collection of primary data from the selected farmers on marketing aspect of lac production as well as persons involved in the marketing process.

The study adopts the multi-stage stratified random sampling method to select lac growers in Purulia district. In stage I the major lac producing blocks are chosen while in stage II major lac producing villages from previously selected blocks are chosen. In stage III specific number of sample growers has been selected with an aim to make study over more than 50 lac growers. Survey method was followed for the detailed enquiry of the individual farmer to arrive at the exact problems and prospects of lac cultivation in this area for the agricultural year 2009-2010 in these three blocks of Purulia District Baghmundi, Balarampur and Jhalda-I.

Lac cultivation in Purulia is inseperably interwoven with tribal culture and tradition since time immemorial. It is labour intensive and agrobased trade which requires four distinct activities namely, growing of host plants like Ber, Palas and Kusum etc., inoculation with broodlac, lac production and its processing and marketing. The discussion of cultivation of lac with the lac insect is taken into consideration at length.

Lac production is considered as one of the most subsidiary occupation for 19 villages purposively selected from three blocks namely Jhalda-I, Baghmundi and Balarampur block. In Jhalda-I block we selected 13 villages surrounding Jhalda town namely Het-jargo, Karamadi, Udaysiru, Telidih, Putidih, Jargo, Pardih, Bandhadih, Kula-janga, Darpa, Chandai, Sarenghutu, Birudih. Five villages viz. Kurupahar, Saldih, Chirubera, Kuchrirakha and Vitpani under Baghmundi block were selected. The only village of Balarampur block namely Jasudih was taken for conducting our study. A limited scale survey of lac growing areas of Jhalda-I, Baghmundi and Balarampur was carried out. Socio-economic data were collected from 35, 11 and 4farms of these blocks respectively.

But the marketing system of lac is most irrational which deprived the producers of their genuine price. In the light of above situations we have taken this research programme in the area. At first farmers were categorized into three different size groups marginal, small
and medium and a total of fifty farmers were selected on three stage stratified purposive sampling basis. Primary data were collected from the producers and market functionaries by personal interview with the help of pre-tested schedules and secondary data were collected from block office, Revenue office for the year 2009-10. Tabular Analysis Technique was used as tool of analysis.

The main findings of the study are summerised below:
The study adopted the multi-stage stratified random sampling method to select lac growers in Purulia district. It is seen that the major problems faced by the lac growers are as follows:

1. Insufficient and partial Govt. supply of broodlac
2. Insufficient and partial Govt. supply of instruments
3. Damage of lac cultivation by fog and rain
4. Damage of lac insects by parasites and predators
5. Illiteracy and ignorance of lac growers
6. Storage problem
7. Monopsonistic nature of the market
8. Fluctuation in price of lac
9. Old method of lac cultivation
10. No loan facilities from the Govt
11. No training programme arranged by the Govt
12. Miserable financial condition of the lac growers
13. Theft of lac crops
14. Climatic extremes
15. Besides above problems lac growers faced lack of dissemination of the correct knowledge with regard to systematic cultivation of lac, improved and easy methods of controlling insect pests by means of demonstration on farmer’s field. Scarcity of the host plant at suitable places is one of the major constraints in lac cultivation.

Comparative study of net income from different activities reveals that the net income derived from farm activities, non-farm activities and lac activities by all size groups of the farms was about 34.78, 12.14 and 53.08 percent of the total income respectively. The results indicated that lac cultivation was more remunerative than other activities performed by the farmers in the study areas.
Marketing channels may be shown in the following chart

**Channel-I:**
Producer ↚ Commission Agent ↚ Trader ↚ Wholesaler ↚ Processor

**Channel-II:** Producer ↚ Trader ↚ Wholesaler ↚ Processor

From the analysis of marketing channels, it was observed that channel I was more prevalent and effective in the marketing of both the crops, because 68 percent of the farmers in Rangeeni crop and 66 percent of the farmers in Kusumi crop preferred channel I over channel II.

**Price spread:** The price which the consumer paid for per unit of produce minus the price which the producer received is properly known as the price spread. The larger the price spread or gap, the smaller the share of the producer in consumer’s rupee. As the material has to pass through some intermediaries, naturally the price goes up or the share of the cultivator is reduced.

The price spread to assess the impact on income and production revealed that on an average marketing cost was lower in Kusumi crop (11.24%) than in Rangeeni crop (14.51%). In case of Kusumi crop commission agent’s margin, trader’s margin and wholesaler’s margin all are low compared to margin of these intermediaries for Rangeeni crop. Producer’s share was found to be higher in Kusumi crop (75.75%) as compared to the Rangeeni crop (65.84%) due to lower marketing cost and intermediaries’ margin. It was found that due to better quality and price of Kusumi crop; growers were getting more remuneration than the Rangeeni crop. It was also found that that transaction of Kusumi crop through channel-I was lower as compared to Rangeeni crop and due to this marketing margin and intermediaries cost was lower in Kusumi crop.

Analysis of price spread further revealed that between different size groups of farmers the marginal farmers received higher share in both the crops while medium farmers get lesser share in both the crops.

**Constraints of marketing efficiency:** The lac market is under the control of middlemen. Marketing is characterized by many middlemen as a result cream of the trade does not reach to the grower. The price charged to the consumer is much higher than the producers selling price so there is wide margin between the price paid to the growers and price charged to the ultimate consumers which goes into the hands of the middlemen. In lac marketing growers
have no organized mechanism and lack of transportation facilities create great problem in establishing direct relation with growers and ultimate consumer. So, there is a considerable difference between producer’s selling price and ultimate consumer’s cost price. Finally growers were deprived of their genuine price. The socio-economic conditions of the growers are also responsible to aggravate their ill fate.

On the basis of the results obtained from the present investigation, main conclusions drawn are as follows:

1. More than half of the host trees remain idle due to either shortage of broodlac or uneconomic price received for their produce in the past.
2. The production of Kusumi crop was found to be more remunerative than that of Rangeeni crop but the farmers were growing Rangeeni crop on a larger scale.
3. As lac crop is always prone to the attack of predators, parasites, diseases, climatic fluctuation and theft, its scientific management and monitoring on scattered trees becomes difficult in this areas.
4. Lac cultivation has greater impact on net farm income, more than 50 percent of the total income is derived from the lac cultivation.
5. Channel I was found to be more effective over the channel II in the study area.
6. Producers’ share was found to be higher in Kusumi crop as compared to Rangeeni crop.
7. Marketing efficiency was largely affected by the absence of direct contact with the consumer, less holding capacity of the growers, malpractices performed by the middlemen and lack of transport facility. Due to lack of proper marketing facilities, lac production has suffered a tremendous set back.

10.7 Condition of Lac Industry

Sticklac is converted to commercial grades of seedlac and then shellac. The refinement of sticklac into seedlac is mostly carried out in cottage scale or semi mechanised factories. After refining, seedlac is converted into shellac by hand-made or machine-made process. The refinement of sticklac into seedlac, the semi processed material, is mostly carried out in cottage scale or semi-mechanised factories in the lac growing areas.
When seedlac is prepared from sticklac, it contains 3-7% of foreign matter in the resin. To remove these impurities, further processing is carried out which converts it into shellac or *button lac*. The shellac, after production, is allowed to cool off after stretching for a few hours and then transferred to a cool-shaded godown. It is best stored in air-conditioned warehouses. It keeps the quality of lac and prevents lac from blocking, which is quite a problem. Machine-made shellac is produced in two different ways— one is heat process where the same principle as in the case of handmade shellac is applied and the second is solvent process where pure shellac is extracted from seedlac by suitable solvents.

The final product possesses properties of much greater value than it finds ready use in a large number of industries. Chief uses of the lac products are:

1. in the manufacture of Gramophone records
2. for protective and decorative finishes particularly for wood (French polish and floor polish)
3. in the electrical insulating industry for manufacture of micanite
4. in printing inks
5. There are a number of minor uses such as stiffener for felt hats, as toning agent for leather finishes and as base for sealing waxes and gasket cement.

Apart from these, shellac is used in amunitions, pyrotechniques, adhesives, gramophone records, dental composition, nail polish, bungle making etc.

From a survey of lac factories conducted at Balarampur, Jhalda and Tulin of Purulia district, it is known that among various types of ownership i.e proprietorship, partnership, private ltd. co. and co-operative societies, the first occupies the highest position. Though, manufacturing is the principal activity, some factories carry on processing also. Factories procure sticklac from lac growers and middlemen. In processing sticklac, some factories have to confront problems for insufficient production of sticklac, high price of sticklac due to import, fluctuation in the price of sticklac etc. In processing, filter cloth, soda ash, oxalic acid, charcoal, soft & iron free water and dyeing materials are necessary which are collected from local market. In case of collecting charcoal, some factories face problems. Fixed capital of the factories is different and these are ranged from Rs.1 lakh to Rs.5 crore. Working capital of the factories ranged from Rs.40 lakh to Rs.5 crore. There are both full-time and part-time workers and greater part is the part-time workers. Factories produce
different lac products such as seedlac, shellac, button lac, sealing wax, kirilac, and lac bungles etc. Some produce only one, some produce more than one. Among all the products, quantity of shellac is the highest.

Some factory owners have invested capital of their own, some have taken loan also. But major portion is without loan. Loans have been taken from different sources i.e Bank, W.B.F.C, G.K.S.P, the rate of interest of which is different. Some factories have already repaid the loan, some have been repaying. In a word, there is no defaulter in loan repayment. Most of the factories have not got any type of Govt. assistance. Only a few factories have got Rs.25 lakh as grant from the department of cottage and small scale industries. Products are sold in local market to traders and exported also to foreign countries, such as the U.S.A, U.K, Germany, Italy, Indonesia, Australia, China, Canada, Japan, Spain, Bangladesh etc. Value of export of some factories is upto Rs. 30 crore and of some factories is Rs 2 crore to Rs 5 crore. In case of marketing, some factories confront problems of huge competitions in international market, high price of lac products due to high transportation cost, sales tax and so on. Some factories face electricity problem due to power failure because they have no alternative power arrangement of their own. Some factories have to encounter labour problem because of labour strikes, scarcity of skilled labourers and so on. Some factories have to face with disadvantage in transport and communication due to increasing transport cost and lack of advancement in technology. Supply of sticklac is insufficient from local market and most of the factories have to import sticklac from different states of India. Indian Institute of Natural Resins and Gums does not provide any help to any of the factories and all the factory owners are of the opinion that government should help the lac factories. They have also remarked at the same time that though there are various problems both in lac cultivation and lac industry, the industry has a bright future.

**Problems faced by lac industry:**

1. Insufficient supply of sticklac in comparison with needs.
2. More use of old method and less use of improved technology.
3. Decrease in demand on lac based products due to the inventions of synthetic resin.
4. Small quantity of high quality products.
5. Problem to collect charcoal.
6. Problem in time of power failure and break-down
7. Scarcity of water in summer season
8. Labour problem
9. Increase in transportation cost
10. Transport strike
11. Sales tax on lac based products
12. Instability of tenure of personnel
13. Severe competition in international market
14. Lack of government assistance
15. Health & hygiene problem of the workers in the factory
16. Lack of welfare activities for the workers.

Measures Taken by the Govt. to Improve Lac Cultivation & Lac Industry

1. Free Broodlac Distribution
2. Free Instrument Supply
3. Sticklac Purchases through co-operative societies
4. Govt. incentives to cottage and small scale industries, as sanction of subsidized loan and some discount in interest on rest capital for five years.

It is true no doubt that, with the advent of synthetic goods in the market, a violent competition is running between synthetic and lac and as a result, demand of lac products and lac itself has decreased to some extent in the national market as well as international market. But synthetic resin is artificial and may be toxic sometimes. On the other hand, lac is equipped with a series of good qualities, such as, it is natural, economical, non-toxic in nature, it has excellent preservative power, it can be applied in numerous occasions. For these reasons, technically advanced countries like the U.S.A, U.K, Germany, France, Italy, Russia, Japan etc. are thinking freshly about lac and are accepting lac with much esteem. Market of lac in Egypt, Iraq and Indonesia also widen fast. Again, artificial, dazzling goods can win the competition for the time being only, but in the long run, only the natural goods can survive. The eternal truth is applicable in respect of lac also. Seedlac, shellac etc. of Purulia district are exported to not only national states such as Maharashtra, Rajasthan,
Gujrat, Madhya Pradesh etc. but it has a world wide markets. It earns huge amount of foreign exchange. For these reasons, it can be said that it has a bright future.

10.8 Analysis of Growth Pattern of Lac Industry

In order to study the growth pattern of the lac industry, we have measured trend rate of growth of production by taking three categories of firms namely big size firms, medium size firms and small size firms. For this, prominent five manufacturing firms under each category have been selected. In order to find out possibility of future growth, linear trend growth rate of production had been computed with the help of necessary data for the years 2008-09 to 2010-11. During the period under consideration (i.e. 2000-01 to 2010-11) the production of five big manufacturers had an annual growth of 12.94%. The rate of profit for the big firms remained more or less stable during study period. Except for the years 2001-02 and 2008-09 the rate of profit remained more or less stable in the range of 4% to 13%.

We see that the rate of increment of total production for medium size firms is dwindling from 23.58% to -12.03% over the year and fixed the average rate of increase at 3.18%. During the period under consideration (i.e. 2000-01 to 2010-11) the production of five medium manufacturers had an annual growth rate of 2.13%. We can conclude that production, price and profit rate were fluctuating for the medium size farm. However it cannot but be admitted that fluctuation of profit was wider in comparison to that of production and price.

In respect of five selected small size firms for the period from 2000-01 to 2010-11, it is observed that there was no strong indication that the profit rates over the years had taken a downward swing. It showed a positive but distinctly declining rate of profit. The trend rate of production over the period has been as high as 2.34%. Over time investment for the tiny manufacturers of the lac industry had been becoming less remunerative and less attractive. Undoubtedly continuation of the trend leads to migration of manufacturers from the tiny industry to other professions.

If we consider the analysis by taking all the 15 firms together, then the analysis will give us the integrated picture of lac industry. From that we can derive the growth pattern of lac industry as a whole. The production of lac manufacturers grows at 10 percent per annum.
10.9 Condition of Lac Trade

Lac trade in India is complex in character. It has plethora of problems. It has become export oriented as the demand in the home market is hardly 20-25%. The trade is of considerable economic importance in the economy of tribal population in certain states. It also makes small but significant contribution to the foreign exchange earning of the country.

Lac yields two distinct products lac dye and lac resin. In the early nineteenth centuries, lac dye was more widely used than lac resin. But the practical disappearance of the dye as an important commercial product due to the discovery of aniline and other synthetic dyes would be evident from exports of lac dye. The lac resin, however, has had better luck. The world consumption of lac has been slowly but steadily rising.

Recent trend suggests that a stable internal market of lac product has been growing. Now the trade of lac good should not abide by the rule of world demand. That means the lac industry in Purulia bears the prospect through producing the type of lac goods which facilitate the diversified uses of lac in domestic market. But threat is that the entry of the synthetic dyes and resins into the market resulted in changes in the pattern and quantum of domestic consumption of lac. Lac is no longer remained the indispensable raw material it was resulted in shellac yielding place to its synthetic rivals. It was sometimes, improved performance as in the area of acrylic in leather finishes, or the P.V.C. copolymer which fulfilled certain requirements for fillerless long playing gramophone records.

Changing consumption-pattern is observed in the lac trade. Lac has varied uses due to its versatile properties. The lacquering industry also consumes lac to colour wooden articles made by turnery. Lac bangles are also an important industry of Rajsthan, which are demanded by western countries. Lac is used for coating tool handles. Lacquering of wooden construction with lac was a very aristocratic practice in China.

The most popular use of lac is in polishing wooden furniture. Shellac for marine varnish was found to be very suitable. Lac is used for manufacture of printing ink in large quantity. Lac coating on some medicinal pills are used to make it water resistant. In electric industries, lac is used as insulator. In leather industry, lac is used for finishing processed leather.
10.10 SWOT Analysis

With a careful and thorough survey of lac agriculture and lac industry of Purulia district, it is being noticed that there are many problems in both of these. Still at the same time, it may also be said that, if solution of the problems can be achieved, there are much possibilities and prospects of lac industry of Purulia. In concluding part I am trying to discuss the SWOT (Strength, Weakness, Opportunity and Threat) analysis.

**Strength**

1. The district is the world’s largest processing centre thereby reflecting 25% of world’s total raw material consumption which is equivalent to 43% of India’s total consumption.
2. Major cultivating states such as Jharkhand, Chhattisgarh, Madhya Pradesh are in close proximity of the district. Best quality of sticklac of Baisakhi variety (famous as Manbhum variety) is produced in the district.
3. There is no scarcity of skilled labour in both forms of lac activities: cultivation and industry. Motivated employees also try to give their best effort in maintaining quality of their produce.
4. Natural environment of this district is suitable for lac cultivation and the use of lac product is eco-friendly.
5. There is a strong market demand of lac products in India and abroad. Demand of seedlac and shellac in domestic and export market is growing.
6. The district is well connected by road and rail. So processing units face no problem in getting sticklac from neighbouring states and to dispose of its lac products to different sea ports and air ports. Improved communication facilities are the strength of this district.
7. The district town Purulia is situated in proximity of Kolkata, the major sea-port for export market. The distance is about 270 km. More than 90% of the processed lac of the district is exported through the port. The nearest lac research institute IIINRG has the infrastructure to arrange for training of lac cultivators on improved method of lac cultivation and processing.
8. India is the global leader in lac production. Indian lac has a high potential of export market. The marketing channels have been developed traditionally in favour of
Indian traders. Reliability of payments from traders is also ensured. The Shellac and Forest Products Export Promotion Council, Kolkata promotes and regulates the export of lac products from India.

9. Since 17th century India has been engaged in the export of lac. Existing knowledge on processing methods and on risks related to the business of the Purulia district is superior to that of other states traders.

10. Government is committed to promote shellac industry. Lac Development Office Purulia has been bearing the responsibility of development of different lac schemes and extension of lac cultivation. The nationalized commercial banks in the district along with West Bengal Financial Corporation (WBFC) provide term loan, working capital loan to the lac firms. Margin money loan has also been availed under Rural Employment Generation Programme (REGP) of KVIC. These credit supports plays a vital role for the promotion and extension of shellac and button lac.

b. Weakness

1. Lower range of local sticklac production in the Purulia district. Purulia district contributed on an average only 0.77% in national production during last ten years. For processing now district’s industrialists are to depend on supply coming from other districts as well as other states’ production.

2. Production of raw lac is seasonal in nature. Mainly Baisakhi lac is cultivated. There is longer production cycle and a higher inventory level is maintained. During the months of January-February the production of seedlac and shellac hampers badly due to meager supply of Baisakhi lac. Inadequate extension facilities for lac cultivation and marketing are responsible for that.

3. There is lack of scientific method to determine the ‘chouri parta’ content in stick lac. Lac content in sticklac varies between 40-60%. Price of sticklac depends on lac content which the cultivators, because of lack of proper education & training, find difficult to assess. Middlemen, having comparatively better understanding of the matter, influence the cultivators. Consequently cultivators quite often are deprived of the right price for the sticklac produced by them.
4. Average education level of cultivators is low. They usually habituated with traditional method of cultivation. Obsolete and inadequate technical information is available with the cultivators in respect of lac cultivation.

5. Testing facilities are not available in Purulia district. In order to examine whether there is resin in the shellac or buttonlac manufacturers have to bring products in testing facility centre in Kolkata. It is also evident that processors are not worried about the resin adulteration in their product.

6. Inadequate storage infrastructure. Sticklac, specially fresh Ari, if kept in a heap or in bags is liable to coalesce into big lumps which become very difficult to work with in subsequent processing.

7. Major processors are financially weak. The lending institutions such as KVIC, NABARD are found uninterested in providing financial assistance to the smaller lac manufacturers due to the reasons of hidden market, gambling trade as also high fluctuation in market price.

8. Due to gambling, unstable and speculative market price of sticklac fluctuated abruptly. Price fluctuating compels the growers to dispose their products at the prevailing rate.

9. Closed auction method is followed for raw material buying. In this process receipt of non-remunerative price for sticklac is a disheartening factor for the lac cultivators.

10. Restricted marketing channels are resulting in exploitation of cultivators by the middlemen. Exploitation of growers during purchase at primary level took place in the form of less price, improper weighing, allowances of poor quality, distress sale etc.

11. There is a lack of adequate market information collection and dissemination system. The processors are also negligent in creating a healthy marketing system (both forward and backward). Unhealthy competitive trade practices are ruling here due to non-existence of professional management and control in the marketing system.

12. Adequate labour welfare measures (such as accidental benefit, pay holiday, puja bonus) are not provided in hand-made shellac manufacturing factories in this district. It is observed that the labourers engaged in production of hand-made shellac have been leaving these bhatas gradually and engaging themselves in the bhatas at other
states like Chhatishgarh and Jharkhand at a higher wage rate. Thus the units in Purulia have been facing labour crisis day by day.

13. Lac Industry association, Balarampur Kshudra Lakksha Silpa Baybasayee Samity, was constituted to promote fair trade practices amongst the traders and to fulfill the interest of lac growers. The association could not fulfill these purposes due to financial constraints.

c. Opportunity

1. **Government initiatives to develop sticklac cultivation and processing**: Zilla Parishad of this district gives a part of money from its “Grant in Aid” fund to the Lac Development Officer as grant for the distribution of free broodlac and instruments to the lac growers. Govt. has formed “West Bengal Lac Artisan’s Co-operative Society” to purchase sticklac from the lac growers at reasonable prices. To encourage the lac growers, Govt. has arranged specimen farming in demonstration plots of farmers’ fields. Govt. has arranged incentives to lac industry (under the cottage and small scale categories) in the form of sanction of subsidized loan and some discount in interest on fixed capital investment for five years.

2. **Various Central Government projects to promote village infrastructure**: NABARD has also different schemes in this district in order to support various promotional interventions in the Rural Non-farm sector aiming at creation of employment opportunities. These schemes cover rural entrepreneurship development programme with a view to promote and strengthen the SHG’s in the district through the NGOs.

3. **Building Infrastructure Facilities**: NABARD’s involvement in the lac cluster development programme at Balarampur has also been thought for setting up of common facility center for storage of raw material as well as finished products, testing facilities, information access, e-marketing and capacity building. It is also active in setting up of value added products manufacturing unit with public private partnership.

4. **Wide application of value added products**: Lac basically yields three useful materials- resin, dye and wax. These are natural, renewable, nontoxic and eco-friendly and can be put to a unbelievably wide range of applications: 1) wood
finishing, 2) printing ink, 3) electrical industries, 4) leather and foot wear industries, 5) pharmaceutical, confectionary and fruit coating, 6) cosmetic industry, 7) hat industry, 8) photography industry, 9) rubber industry, 10) paint industry, 11) automobile industry, 12) grinding wheels, 13) paper varnish etc.

5. **Tremendous scope for increasing the global demand for lac**: A definite demand already exists for lac derived materials. Besides there also exists a tremendous potential for much higher consumption due to global trend for safer natural products. Great scope of value-addition for export market is also noticed. There is a scope for achieving reasonable and steady price level by adopting production and marketing strategies to strengthen demand in the global market.

6. **Huge potential for boosting domestic lac consumption** : From the survey (2011) conducted by Transfer of Technology Division, IIINRG, Ranchi we see that domestic consumption of lac and its value added products is about 3000 M.T. which was 46% of total export in this year. IIINRG initiates strong measures to boost internal lac consumption in order to stabilize the domestic price of lac.

7. **A sizeable unutilized infrastructure for lac processing**: In the year 2011-12 lac processing units in this district is 143. Once upon time it was 500 in the decade of sixties. Numbers of causes are there for shut down. But they can be again revived by concerted efforts of GOs and NGOs under the prevailing production and industrial scenario.

8. **Untapped potential for greater utilization of by-products like lac dye, wax etc**: From processing of 40 kg sticklac we can obtain 5 kg of by-products. This can again be used in further preparation of shellac by common effluent treatment plant. But unfortunately these by-products of this industry remain unexploited due to lack of technological know-how, commercial application and short sightedness of the existing entrepreneurs.

*d. Threat*

1. **Seasonal production of raw material**: The raw lac appears in the market generally in two seasons (May-June and October- November). Consequently, the local factories depend for about six months in a year on lac brought from adjacent areas. In the slack
seasons small factories are forced to close for six months. They re-opened when local lac is available.

2. *Shelf life problems of sticklac and finished products:* The sticklac can be stored upto three years. But the quality of lac resin (melting power, adhesive power, colour etc) is going to deteriorate after few months. The tendency to form lumps, forming hard blocks of lac is being noticed due to improper storage of sticklac, which is very difficult to work for subsequent processing. Inadequate storage infrastructure creates problem in the storage of lac products and the essential properties of these products are deteriorated due to loss of fusibility and solubility.

3. *Import of sticklac:* Import of sticklac to meet export requirement of seedlac and shellac has been increasing since the beginning of the 21st century. The import of lac starting with 600 M.T. in the year 2001-02 now reached 5797 M.T. in the year 2011-12.

4. *Manual processing and inadequacy of processing knowledge:* In every step of lac industry, there are still old methods in practice. Though some improved technologies have been discovered, these could not be introduced for various reasons. Old methods are labour intensive. Unit cost of production by using labour intensive technology is higher than that by using capital intensive technology. Growers and small manufacturers face the problem of lack of dissemination of the correct knowledge with regard to lac cultivation and processing.

5. *Low productivity:* Traditional cultivation practices have not been sustainable due to high pest infestation and over exploitation of host plants. The cultivators do not adopt any new scientific method which can enhance the intensity of lac cultivation. In this method production of lac is small quantity and there is absence of constant impetus for lac growers to produce more.

6. *Lack of quality awareness of broodlac:* The old method does not give sustained supply of broodlac which is required twice in a year and thus resulting non-availability or low availability of broodlac of proper quality. Quality of sticklac is also hampered.

7. *Quality inconsistency:* One of the major threats of the processes of the indigenous factories is the non uniformity of qualities of the products. Moreover there is a
tendency of admixture seedlac with rosin in the preparation of button lac and shellac and made the product as low graded quality. The good-will of Indian traders has been decreasing.

10.11 Suggestions
1. *Free and sufficient Govt. supply of quality broodlac and instruments:* Govt. should supply free and sufficient quality broodlac as well as instruments and should take notice so that the goods are distributed impartially.

2. *Appointment of Govt. specialist to visitors recognizes parasites and predators of lac insects:* Sometimes, the illiterate and ignorant farmer cannot recognize parasite and predator attack on lac insects or pests. So, Govt. should appoint specialist visitors who will visit lac growing belts now and then and advise the farmers on the measures to be taken by them, for insects and pests control.

3. *Practice of modern ways of lac cultivation:* Old method of cultivation should be given up and modern ways of cultivation adopting coupe system, mechanized process of inoculation, infestation and harvesting should be practiced.

4. *Arrangement of storage facilities:* Govt. can offer storage facilities to the farmers by building Govt. godowns where the farmers will store sticklac immediately after harvesting.

5. *Establishment of price regulating market:* To avoid middlemen like Paikars, Dalals, Agents etc. who dominate the purchase of sticklac commanding over 90% sticklac traded in primary, secondary and terminl market. Govt. should establish price-regulating system where the cultivators will get reasonable price and will not be subject to exploitation through malpractices in weights and measures. Instability in price of sticklac will be somehow removed by it.

6. *Formation of Co-operatives:* Govt. should encourage lac growers to form co-operatives which will break the monopsonistic nature of the market dominated by the middlemen.

7. *Arrangement of subsidized Govt. loan:* Govt. should arrange subsidized loan to farmers to improve lac cultivation.
8. **Arrangement of training programme for lac cultivators**: Govt. should arrange training programmes of lac cultivators and through discussions, cultivators will get new light regarding lac cultivation.

9. **To encourage the illiterate labourers to join adult education programme**: The labourers should join the Adult Education Programme directed by the Govt. to make themselves literate for their own interests.

10. **To increase demonstration plot**: Demonstration plots should be increased to facilitate the growers for training programmes.

11. **To encourage local use of lac**: Both short and long term strategies may be evolved to encourage local use of lac within the country as lac has been so long viewed primarily as an item for export. Research and development efforts are required to be specially directed in this respect under a time bound programme.

12. **To improve hand-made process for better health**: The existing hand-made process is required to be improved for ensuring better health and hygiene as the system of hand twisting and exposure to heat very adversely affect the health of the artisans and workers engaged in small factories.

13. **Exemption of sales tax on lac based products**: Lac based products are subject to sales tax. Since lac trade is mostly dominated by small units, payment of sales tax should be exempted.

14. **Compulsory purchase of sealing wax, button lac, shellac through co-operatives**: Purchase of sealing wax, button lac, shellac etc. may be made compulsory from lac co-operatives.

15. **To adopt welfare measures for the workers**: Welfare measures like insurance, old age pension, free supply of heat proof spectacles may be introduced.

16. **To build well ventilated and well drainaged factory rooms**: Factory rooms should be well ventilated, drainage system should be well and adequate, floors should not be damp, for the sake of health and hygiene of the workers.

17. **To encourage use of lac in other industrial items**: Steps should be taken for diversification to ensure more and more use of lac in other industrial items to increase demand of lac.
18. **To search substitutes of charcoal**: Substitutes of charcoal should be searched and new forest area should be created.

19. **To take care for incessant running of production**: Factory owners should be vigilant so that the production runs incessantly. For this, labour strike is to be avoided or removed by speedy fulfillment of the demands of the labourers or by reaching an agreement with them. Raw materials are to be stored in large quantities. Machinaries are to be kept always in orderly conditions and so on. Govt. also should interfere in the labour strikes, if necessary.

20. **Products should be of better qualities**: Lac based products should be of better quality and this quality should be maintained. For this, research works and developmental efforts should be accomplished by the Govt.

21. **To control rise of transport cost**: Govt. should take notice so that fare of transport may not rise and should interfere in transport strike, labour strikes etc. If so, the transportation cost will not exceed.

22. **To arrange telecommunication and internet facilities to interior lac-growing villages**: Govt. should arrange telecommunication facilities to interior lac growing villages. It should take care so that those villages can avail the opportunity of internet facilities by Computer.

   Incessant efforts should be made for better development of this industry. New agricultural belts are to be established. Problem of unemployment will partly be solved in it and financial condition of economically backward Purulia district will not only be better but also west Bengal as well as India can reach a better financial position if the lac industry of Purulia district prospers.
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APPENDIX-1

QUESTIONNAIRE FOR SURVEY OF LAC CULTIVATORS:

1. Name of the Cultivator:

2. Caste (SC/ST/OBC):

3. Village:

4. Block:

5. Number of family members:

6. Main occupation of the household:

7. Description of cultivator’s land:

<table>
<thead>
<tr>
<th>Nature of the land</th>
<th>Volume</th>
<th>Irrigation facilities</th>
<th>Expenditure/Season</th>
</tr>
</thead>
</table>

i. Land for cereal:

ii. Land for lac:

iii. Land for others:

iv. Land taken out as lease:

V. Land given for lease:

*If yes source of irrigation

8. Description of cultivator’s house:

9. Information regarding lac-host tree

<table>
<thead>
<tr>
<th>Name of the host tree</th>
<th>How many</th>
<th>Utilised</th>
<th>Compare to previous year</th>
<th>Octo/Janu</th>
<th>July</th>
<th>Whether larger/smaller-Why?</th>
</tr>
</thead>
</table>

i. Ber

ii. Palas

iii. Kusum

iv. Other host

10. Production of previous year (in terms of Kg)

<table>
<thead>
<tr>
<th>Name of the host tree</th>
<th>Brood lac</th>
<th>Sticklac</th>
<th>Sale to*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantity</td>
<td>Rate</td>
<td>Quantity</td>
</tr>
</tbody>
</table>

i. Ber

ii. Palas

iii. Kusum

iv. Other host

* 1. Local agent 2. Local market 3. Town market 4. Factory 5 Arhat 6. Other
11. The time schedule for lac cultivation

<table>
<thead>
<tr>
<th>Crop</th>
<th>Time of inoculation</th>
<th>Time of harvesting</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Baisakhi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Katki</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. Jethwi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv. Aghani</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. The equipments and broodlac for lac cultivation:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Broodlac(Kg)</th>
<th>Rate/Kg</th>
<th>From where bought</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Baisakhi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Katki</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. Jethwi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv. Aghani</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other equipments & Insecticides

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Rate/Unit</th>
<th>Remarks</th>
</tr>
</thead>
</table>

9. Labour employment

<table>
<thead>
<tr>
<th>Nature of works</th>
<th>Palas</th>
<th>Ber</th>
<th>Kusum</th>
<th>Palas</th>
<th>Ber</th>
<th>Kusum</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Octo</td>
<td>Octo</td>
<td>July</td>
<td>Octo</td>
<td>Octo</td>
<td>July</td>
<td>July</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

i. Pruning
ii. Innoculation
iii. Phunki removal
iv. Insecticide spraying
v. Ari-lac cutting
v. Broodlac cutting
vi. Carrying the crop
vii. Others

14. Current year production (in terms of Kg)

<table>
<thead>
<tr>
<th>Name of the host tree</th>
<th>Quantity</th>
<th>Rate</th>
<th>Sale to*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Octo/Jan</td>
<td>July</td>
<td>Octo/Jan</td>
</tr>
</tbody>
</table>

i. Ber
ii. Palas
iii. Kusum
iv. Other host

* 1. Local agent 2. Local market 3. Town market 4. Factory 5 Arhat 6. Other
15. Current year production (in terms of Kg)

<table>
<thead>
<tr>
<th>Name of the crop</th>
<th>Quantity</th>
<th>Rate</th>
<th>Sale to*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Oct/Janu</td>
<td>July</td>
<td>Oct/Janu</td>
</tr>
<tr>
<td>i. Phunki lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Ari lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. Broodlac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv. Wood</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Expenditure for marketing

i. Carrying cost
ii. Market fee
iii. Others

17. Problem of lac cultivation:

18. Adopted modern techniques (Yes/No):
If yes give brief description about adopted modern techniques

19. Process of cultivation (Traditional method/scientific method/natural collection)

20. Government helps (Yes/No), If yes maintain the nature of help
   i. Training/Demonstration
   ii. Broodlac supplying
   iii. Equipment supplying
   iv. Others

21. Source of income other than lac:

<table>
<thead>
<tr>
<th>Source of income</th>
<th>Amount of income earning per season</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Farming (Paddy/wheat/others)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii. Daily labour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii. Forest products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv. Animal husbandry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>v. Fruit &amp; vegetables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi. Others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. Monthly expenditure:
   i. For fooding:
   ii. Clothing
   iii. Education purpose:
   iv. Health and medicine:
   v. Entertainment:

   Date & Place: ___________________________  Signature of the cultivator
APPENDIX-2

Balarampur, Jhalda and Tulin were selected to conduct the study of lac industry as these are the main lac manufacturing places in the Purulia District contributing around 95 percent of the district seedlac and shellac production. The relevant information was collected from the respondents through personal interview using pre-tested interview schedule and questionnaire by survey method. The manufacturers have been classified based on number of Bhatta and Machine posses as a. Small Firms (which possess only Bhatta.) b. Medium Firms (which possess Bhatta and Barrel Washing Machine).c. Large Firms (which possess Hydraulic Press Machine and Barrel Washing Machine.). Information collected from 164 persons among them 73% are manufacturer, comprises of 92 medium farms, 8 large farms and 20 small farms. Other 27% belongs to Government Officials, Arhatdar, Buyers of lac and lac workers. Some important persons among the interviewed persons who earn name and fame in the lac market are listed below:

a. List of Persons Interviewed in Balarampur, Jhalda and Tulin

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ranjit Majhi</td>
<td>Medium Firm owner and Secretary, Balarampur Khudra Laksha Kutir Silpa Baybasayee Samity</td>
</tr>
<tr>
<td>2</td>
<td>Subhas Agarwal</td>
<td>Arhatdar, Buyer and Secretary, Chapra Byaparik Sabha</td>
</tr>
<tr>
<td>3</td>
<td>Kishorilal Agarwal</td>
<td>Manufacturer, Exporter</td>
</tr>
<tr>
<td>4</td>
<td>Dilip Pal</td>
<td>Manufacturer, Exporter</td>
</tr>
<tr>
<td>5</td>
<td>Santosh Kumar</td>
<td>Medium Firm owner and President, Balarampur Khudra Laksha Kutir Silpa Baybasayee Samity</td>
</tr>
<tr>
<td>6</td>
<td>A. Panigrahi</td>
<td>Manager, CBI</td>
</tr>
<tr>
<td>7</td>
<td>Rakahahari Kumar</td>
<td>Secretary, WB Lac Artisans’ Co-operative Society.</td>
</tr>
<tr>
<td>8</td>
<td>Biswanath Karmakar</td>
<td>Machine supplier</td>
</tr>
<tr>
<td>9</td>
<td>Brijmohan Tulsian</td>
<td>Buyer</td>
</tr>
<tr>
<td>10</td>
<td>Bablu Chatterjee</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>11</td>
<td>Ajodhya Shaw</td>
<td>Medium Firm owner</td>
</tr>
<tr>
<td>12</td>
<td>Subhas Gope</td>
<td>Medium Firm owner</td>
</tr>
<tr>
<td>13</td>
<td>Sanatan Dutta</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>14</td>
<td>Subhas Dey</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>15</td>
<td>Nikhil Kumar</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>16</td>
<td>Swapan Kumar</td>
<td>Medium Firm owner</td>
</tr>
<tr>
<td>17</td>
<td>Sukumar Ghosh</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>18</td>
<td>Tinka Kundu</td>
<td>Medium Firm owner</td>
</tr>
<tr>
<td>19</td>
<td>Nimai Kumar</td>
<td>Selling Agent</td>
</tr>
<tr>
<td>20</td>
<td>Dhiren Kumar</td>
<td>Medium Firm owner</td>
</tr>
<tr>
<td>21</td>
<td>Rajesh Jaishwal</td>
<td>Small Firm owner</td>
</tr>
<tr>
<td>22</td>
<td>Anup Saraf</td>
<td>Arhatdar</td>
</tr>
<tr>
<td>23</td>
<td>Basanta Kumar Das</td>
<td>Statician, SEPC</td>
</tr>
<tr>
<td>24</td>
<td>Dr. Govind Pal</td>
<td>Economist, IINRG</td>
</tr>
</tbody>
</table>
APPENDIX-3

QUESTIONNAIRE FOR SURVEY OF LAC PROCESSING UNITS:

• LOCATION
  1. Name of the village/town:
  2. Distance and name of nearest lac market:
  3. Distance and name of nearest town/city:
  4. Distance and name of nearest railway station:
  5. Distance and name of nearest NH/SH:

• OWNERSHIP DETAILS
  1. Date of establishment of the factory:
  2. Whether single or in partnership:
  3. If in Partnership, then please provide the details below:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Share (%)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capital</td>
<td>Profit</td>
</tr>
</tbody>
</table>

• EMPLOYMENT SCHEDULE:

<table>
<thead>
<tr>
<th></th>
<th>Administration</th>
<th>Supervisory/Technical</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Skilled Temporary</td>
<td></td>
<td>Unskilled Temporary Permanent</td>
</tr>
<tr>
<td></td>
<td>Permanent Permanent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of employees</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Salaries</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• PRODUCTION SCHEDULE:
  1. No. of shifts per day-
  2. No. of working hours in each shift-
  3. No. of workers in each shift-
4. Total no. of working days-

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of worker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Production in terms of Kg.

<table>
<thead>
<tr>
<th></th>
<th>Seedlac</th>
<th>Shellac</th>
<th>Button lac</th>
<th>Bleached lac</th>
<th>Dewaxed Lac</th>
<th>Lac Wax</th>
<th>Lac Dye</th>
<th>Others (Specify)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per shift</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per year</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Standard Processing Capacity per day:
   - CAPITAL INVESTMENT (PRESENT COST)
     1. Land and Building:
     2. Crushing Machine:
     3. Sieve:
     4. Washing Vats/Barrel:
     5. Belchi:
     6. Hydraulic Press Machine:
     7. Roller Machine:
     8. Bhatta:
     9. Boiler:
    10. Steel Vat:
    11. Other Equipments:
   - EXPENDITURE:
     1. Raw Material (in Rs):

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item</th>
<th>Per Shift</th>
<th>Per Month</th>
<th>Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Scrapped lac/ Stick Lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Charcoal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Caustic Soda</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Markin Cloth</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Oxalic Acid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Other (Specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Electricity fitting cost:
3. Electricity charges (per month):
4. Rent (building) per month & per annum:
5. Water source and expenditure:
6. Marketing Cost:
7. Packaging (specify the packaging unit, eg. 25kg/50kg/100kg. etc.):
8. Grading/testing:
9. Transportation (means/cost):
10. Commission charges:
11. Others (Specify):

<table>
<thead>
<tr>
<th>Main Product</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>2006-07</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty</td>
<td>Rate (in Rs)</td>
<td>Qty</td>
<td>Rate (in Rs)</td>
<td>Qty</td>
</tr>
<tr>
<td>Seed lac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shellac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Button lac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bleached lac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dewaxed lac</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (Specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- ANNUAL PRODUCTION (during last five years)

<table>
<thead>
<tr>
<th>By- Products</th>
<th>2010-11</th>
<th>2009-10</th>
<th>2008-09</th>
<th>2007-08</th>
<th>2006-07</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qty</td>
<td>Rate (in Rs)</td>
<td>Qty</td>
<td>Rate (in Rs)</td>
<td>Qty</td>
</tr>
<tr>
<td>Patti</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Molama</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuhni</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kiri</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passewa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lac dye</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lac wax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others (specify)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- STORAGE AND MARKETING

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Items</th>
<th>Storage Period</th>
<th>Stored Quantity</th>
<th>Storage Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Scrapped lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Seed lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Shellac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Button lac</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Mode of Marketing:
2. Quantities of lac supplied to industries/firms in India (in quintal):
3. Whether Exporting:
4. If Yes quantity exported (in M.T):
5. Export of produce whether by himself or through exporter:

- IMPORTANT QUARIES

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Questions</th>
<th>Response Problems</th>
<th>Suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Will mechanizations solve the problems of your unit?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>If yes what type of facilities you needed for mechanization?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>What are the major problems being faced in running the factory by you? Write in priority wise. Also, suggestions to overcome these problems.</td>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
<td>List all other problems faced by you.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>In your view what are the main problems of lac industry in Purulia district.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date: ___________________________  Signature of the owner/manager of the surveying unit
APPENDIX-4

Baghmundi, Jhalda and Kalimati markets in Purulia district are the lac markets with annual arrival of over 500 tons during 2009-11. Again the surrounding areas of the markets are covered with forests having natural lac host trees which provide essential food plant for lac and are largely inhabited by schedule castes and schedule tribe population whose one of the major subsidiary occupation in lac cultivation. The data on marketing of rangeeni & kusumi sticklac have been collected from the lac market (Baghmundi, Jhalda, Tulin, Kalimati, Chandan Keari and Balarampur) on quarterly basis during the year 2010 and 2011.

QUESTIONNAIRE FOR MARKET SURVEY

A. General

1. Market (Haat)
   a) Name:
   b) Block:
2. Distance from block and district headquarter:
3. Distance and name of nearest railway station:
4. Distance and name of nearest “pucca” road:
5. Distance and name of nearest NH/SH:
6. Type of market (village/urban):
7. Market days and marketing hours:
8. Purchase of produce:
   a) System of purchase (Whether auction or mutual negotiation)
   b) Cleaning, grading if any before purchase
   c) Supervision over purchase
9. Weighing of produce (Method of weighing):
   a) How much variation from metric system
   b) How much deducted
   c) Any supervision/checking
   d) Recording system
10. Payment of the seller
a) If time taken (how much)
b) If deduction made (how much)
c) Any supervision of the market authority over the payment

11. Market charges if prescribed by the market authority

<table>
<thead>
<tr>
<th>Type of Market Charges</th>
<th>Rate Prescribed</th>
<th>By Whom Payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Origin of dispatches (indicates as % of total volume traded in the market)

<table>
<thead>
<tr>
<th><strong>Origin</strong></th>
<th><strong>Dispatch</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Local Producing</td>
</tr>
<tr>
<td>(Crop/season)</td>
<td>Areas</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

13. Market functionaries:

<table>
<thead>
<tr>
<th>Market functionaries</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Paikar</td>
<td></td>
</tr>
<tr>
<td>2. Primary purchaser (directly from household)</td>
<td></td>
</tr>
<tr>
<td>3. Wholesaler</td>
<td></td>
</tr>
<tr>
<td>4. Others (specify)</td>
<td></td>
</tr>
<tr>
<td>5. Total</td>
<td></td>
</tr>
</tbody>
</table>

**B. Primary Purchasers (Paikars)/ Wholesalers**
1. Name:

2. Mobility (of a week)

<table>
<thead>
<tr>
<th>Day</th>
<th>Name of the Market</th>
<th>Purchase Quantity</th>
<th>Rate</th>
<th>Peak Period</th>
<th>Slug Period</th>
</tr>
</thead>
</table>

3. Purchase

<table>
<thead>
<tr>
<th>Source</th>
<th>Quantity &amp; Rate</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baisakhi</td>
<td>Katki</td>
</tr>
</tbody>
</table>

|       | Framer          |         |        |        | |
|       | Primary purchaser|        |        |        | |
|       | Other (specify)  |         |        |        | |
|       | Total            |         |        |        | |

4. To Sale

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Quantity &amp; Rate</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baisakhi</td>
<td>Katki</td>
</tr>
</tbody>
</table>

|       | Wholesaler       |         |        |        | |
|       | Factory          |         |        |        | |
|       | Other (specify)  |         |        |        | |
|       | Total            |         |        |        | |

5. Marketing charges paid by the primary purchaser/wholesaler

<table>
<thead>
<tr>
<th>Type of Market Charges</th>
<th>Rate Prescribed</th>
<th>ByWhom Payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commission</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market fee</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weighing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other (specify)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>